

Notice of Allowability

Application No.

10/063,094

Examiner

Timothy H Meeks

Applicant(s)

YANG ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed 8/5/04.
2. ☒ The allowed claim(s) is/are 24-28,30-35,37,39 and 40.
3. ☒ The drawings filed on 19 March 2002 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1 <input type="checkbox"/> Notice of References Cited (PTO-892) | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 4 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____ |
| 5 <input type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. _____ | 6 <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other |

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Tanzina Chowdhury on 9/29/04.

The application has been amended as follows:

IN THE SPECIFICATION:

The following sentence has been added as line 1 of page 1 of the specification:

--This application is a divisional of 09/681,820, filed 6/11/2001, now U.S. Patent 6,397,776--

IN THE CLAIMS:

Claim 24 has been rewritten as follows:

24. (Currently amended) A method for coating a substrate [with a larger area than a single plasma source] which comprises generating a set of at least two expanding thermal plasma plumes to produce plasma enhanced chemical vapor deposition or PECVD of a coating on said substrate, each of said plumes in said set having a central axis, wherein said central axes of said plasma plumes are oriented parallel to each other and are perpendicular to a translation direction of the substrate: and heating at least one portion of the substrate by a heating means other than the at

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least two expanding thermal plasma plumes, said heating means being located and adapted to heat regions spaced from the central axes of said plasma plumes.

Claim 35 has been rewritten as follows:

35. (Currently amended) A method for coating a polycarbonate substrate [with a larger area than a single plasma source] the method comprising generating a plurality of sets of at least two expanding thermal plasma plumes, to produce successive coating: on said polycarbonate substrate while moving said substrate past said sets of plumes, each of said plumes in said set being codirectionally oriented and perpendicular to a translation direction of the polycarbonate substrate; said coatings being silica-based and the plasmas being argon or argon-oxygen plasmas; and heating at least one portion of the polycarbonate substrate by a heating means other than the at least two expanding thermal plasma plumes, said heating means being located and adapted to heat regions spaced from the central axes of said plasma plumes.

Claim 37 has been rewritten as follows:

37. (Currently amended) A method of producing a plasma enhanced chemical vapor deposition coating on a substrate [with a larger area than a single plasma source], the method comprising the steps of:

a) providing the substrate to the deposition chamber;

b) providing at least one set of expanding thermal plasma means, wherein the at least one set of expanding thermal plasma means comprises at least two expanding thermal plasma generating means that are codirectionally oriented and located outside

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and in fluid communication with a deposition chamber and wherein each of the plasma means are perpendicular to a translation direction of the substrate;

c) maintaining the at least one set of expanding thermal plasma means at a pressure that is greater than a pressure in the deposition chamber;

d) generating a plurality of plasmas within the at least one set of expanding thermal plasma means;

e) expanding the plurality of plasmas into the deposition chamber to form a plurality of expanding thermal plasma plumes directed toward the substrate, wherein each of the plurality of expanding thermal plasma plumes has a central axis, wherein the central axes of the plurality of expanding thermal plasma plumes are oriented parallel to each other; and

f) providing at least one reagent to the plurality of expanding thermal plasma plumes, wherein the at least one reagent interacts with the plurality of expanding thermal plasma plumes to form the plasma enhanced chemical vapor deposition coating on a substrate; and

g) heating at least one portion of the substrate by a heating means other than the plurality of expanding thermal plasma plumes, said heating means being located and adapted to heat regions spaced from the central axes of said plasma plumes.

In claims 39 and 40, line 1, "38" has been changed to --37--.

The following is an examiner's statement of reasons for allowance: The amendment added above to the independent claims is not taught or fairly suggested by

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the prior art. Although EP 887110 shows a "temperature-controlled support" 22, this support is not located and adapted to heat portions of the substrate spaced from the central axes of the a plurality of plasma plumes and said reference does not teach or motivate one to do so. As described in paragraph 40 of applicants' specification, locating and adapting the heating means in the manner now claimed provides uniform heating of the substrate by compensating for the higher temperature present at the central axes of the plasma plumes.

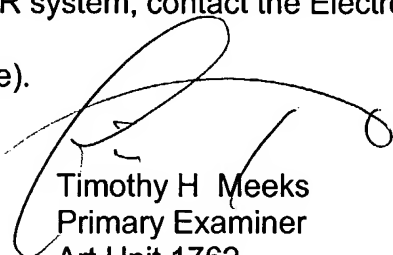
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy H Meeks whose telephone number is 571-272-1423. The examiner can normally be reached on Mon 6-6 and T-Th 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on 571-272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Timothy H. Meeks
Primary Examiner
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